CONTENTS

Volume 26 Number 1

	VOI	une 20 Number 1
D. M. D. Badarneh and I. O. Ghawi	1	Effectiveness of inoculation on biological nitrogen fixation and water consumption by lentil under rainfed conditions
Anders Priemé	7	Production and emission of methane in a brackish and a freshwater wetland
Georg Guggenberger and Wolfgang Zech	19	Composition and dynamics of dissolved carbohydrates and lignin- degradation products in two coniferous forests, N.E. Bavaria, Germany
B. E. Ruz-Jerez, R. E. White and P. Roger Ball	29	Long-term measurement of denitrification in three contrasting pastures grazed by sheep
C. Colinas, E. Ingham and R. Molina	41	Population responses of target and non-target forest soil organisms to selected biocides
M. Constantinides and J. H. Fownes	49	Nitrogen mineralization from leaves and litter of tropical plants: relationship to nitrogen, lignin and soluble polyphenol concentrations
B. E. Baca, L. Soto-Urzua, Y. G. Xochihua-Corona and A. Cuervo-Garcia	57	Characterization of two aromatic amino acid aminotransferases and production of indoleacetic acid in <i>Azospirillum</i> strains
Lise K. Gander, Charles W. Hendricks and Jack D. Doyle	65	Interferences, limitations and an improvement in the extraction and assessment of cellulase activity in soil
L. M. Dandurand and J. A. Menge	75	Influence of <i>Fusarium solani</i> on chemotaxis of zoospores of <i>Phytophthora parasitica</i> and <i>Phytophthora citrophthora</i> and on distribution of ¹⁴ C in citrus tissues and root exudate
R. T. Lartey, E. A. Curl and C. M. Peterson	81	Interactions of mycophagous collembola and biological control fungi in the suppression of <i>Rhizoctonia solani</i>
F. J. M. Verhagen, P. E. J. Hageman, J. W. Woldendorp and H. J. Laanbroek	89	Competition for ammonium between nitrifying bacteria and plant roots in soil in pots; effects of grazing by flagellates and fertilization
R. Ohtonen, P. Lähdesmäki and A. M. Markkola	97	Cellulase activity in forest humus along an industrial pollution gradient in Oulu, Northern Finland
F. Huysman, W. Verstraete and P. C. Brookes	103	Effect of manuring practices and increased copper concentrations on soil microbial populations
Jacqueline Henrot and G. Philip Robertson	111	Vegetation removal in two soils of the humid tropics: effect on microbial biomass
J. Wu, A. G. O'Donnell, Z. L. He and J. K. Syers	117	Fumigation-extraction method for the measurement of soil microbial biomass-S
A. Ghani, S. S. S. Rajan and A. Lee	127	Enhancement of phosphate rock solubility through biological processes
K. G. Wilkinson, K. Sivasithamparam, K. W. Dixon, P. C. Fahy and J. K. Bradley	137	Identification and characterisation of bacteria associated with Western Australian orchids
		The second of the second secon

Ernesto Bosatta and Göran I. Ågren 143 Theoretical analysis of microbial biomass dynamics in soils

Short Communication C. Vannier and B. Guillet

149 Sulphur forms in the organic fractions of an upland forest soil (Mont Lozère, France)

Forthcoming Papers

- 1

	VO	iume 20 Number 2
E. Veldkamp and A. M. Weitz	153	Uncertainty analysis of $\delta^{ 13}{\rm C}$ method in soil organic matter studies
J. Swinnen, J. A. Van Veen and R. Merckx	161	$^{14}\mathrm{C}$ pulse-labelling of field-grown spring wheat: an evaluation of its use in rhizosphere carbon budget estimations
J. Swinnen, J. A. Van Veen and R. Merckx	171	Rhizosphere carbon fluxes in field-grown spring wheat: model calculations based on ¹⁴ C partitioning after pulse-labelling
N. Bernier and J. F. Ponge	183	Humus form dynamics during the sylvogenetic cycle in a mountain spruce forest
Christine D. Maxwell and Cheryl McKenna Neuman	221	Photoautotrophs and the microaggregation of sand in a freshwater beach-dune complex: implications for sediment transport by wind
B. Nicolardot, J. A. E. Molina and M. R. Allard	235	C and N fluxes between pools of soil organic matter: model calibration with long-term incubation data
B. Nicolardot and J. A. E. Molina	245	C and N fluxes between pools of soil organic matter: model calibration with long-term field experimental data
B. Nicolardot, G. Fauvet and D. Cheneby	253	Carbon and nitrogen cycling through soil microbial biomass at various temperatures
A. R. Harris, D. A. Schisler, S. M. Neate and M. H. Ryder	263	Suppression of damping-off caused by <i>Rhizoctonia solani</i> , and growth promotion, in bedding plants by binucleate <i>Rhizoctonia</i> spp
Jan Boelens, Marleen Vande Woestyne and Willy Verstraete	269	Ecological importance of motility for the plant growth-promoting rhizopseudomonas strain ANP15
D. L. Mummey, J. L. Smith and H. Bolton Jr	279	Nitrous oxide flux from a shrub-steppe ecosystem: sources and regulation
Claire Trouve, André Mariotti, Dominique Schwartz and Bernard Guillet	287	Soil organic carbon dynamics under <i>Eucalyptus</i> and <i>Pinus</i> planted on savannas in the Congo
Short Communications Socorro Z. Parco, Michael J. Dilworth and Andrew R. Glenn	297	Motility and the distribution of introduced root nodule bacteria on the root system of legumes
B. Rodelas, V. Salmeron, M. V. Martinez-Toledo and J. Gonzalez-Lopez	301	Production of amino acids by <i>Azospirillum brasilense</i> in chemically-defined medium amended with malate, gluconate or fructose
Forthcoming Papers	I	

Volume 26 Number 3

R. F. Grant	305	Simulation of ecological controls on nitrification
Leon X. Liu and Tom Hsiang	317	Bioassays for benomyl adsorption and persistence in soil
Janine E. Hawkins and Christopher Freeman	325	Rising sea levels—potential effects upon terrestrial greenhouse gaproduction
R. P. Griffiths, J. E. Baham and B. A. Caldwell	331	Soil solution chemistry of ectomycorrhizal mats in forest soil

J. R. Rao, M. Fenton and B. D. W. Jarvis	339	Symbiotic plasmid transfer in <i>Rhizobium leguminosarum</i> biovar <i>trifolii</i> and competition between the inoculant strain ICMP2163 and transconjugant soil bacteria
C. W. Lindau	353	Methane emissions from Louisiana rice fields amended with nitrogen fertilizers
L. Dendooven, P. Splatt, J. M. Anderson and D. Scholefield	361	Kinetics of the denitrification process in a soil under permanent pasture
M. J. Delgado, F. Ligero and C. Lluch	371	Effects of salt stress on growth and nitrogen fixation by pea, faba-bean, common bean and soybean plants
M. Briglia, P. J. M. Middeldorp and M. S. Salkinoja-Salonen	377	Mineralization performance of <i>Rhodococcus</i> chlorophenolicus strain PCP-1 in contaminated soil simulating on site conditions
J. C. Tarafdar and H. Marschner	387	Phosphatase activity in the rhizosphere and hyphosphere of VA mycorrhizal wheat supplied with inorganic and organic phosphorus
Orlando A. Andrade, D. E. Mathre and D. C. Sands	397	Suppression of <i>Gaeumannomyces graminis</i> var. <i>tritici</i> in Montana soils and its transferability between soils
Joy S. Clein and Joshua P. Schimel	403	Reduction in microbial activity in birch litter due to drying and rewetting events
Short Communications P. Benoit, Th. Choné and E. Barriuso	407	On-line measurement of total C and ¹⁴ C of ¹⁴ C-labelled organic matter
K. Toyota, K. Miyashita and M. Kimura	413	Introduction of a chitinase gene into <i>Pseudomonas stutzeri</i> A18 isolated from the surface of chlamydospores of <i>Fusarium oxysporum</i> f. sp. <i>raphani</i>
J. H. van Ginkel, R. Merckx and J. A. van Veen	417	Microbial biomass method based on soluble carbon in the soil solution
Letter to the Editor Ernst Witter, Ken E. Giller and Steve P. McGrath	421	Long-term effects of metal contamination on soil microorganisms
Forthcoming Papers	1	
	Vo	olume 26 Number 4
E. S. P. Bromfield, R. Wheatcroft and L. R. Barran	423	Medium for direct isolation of Rhizobium meliloti from soils
Jyri Kankila and Kristina Lindström	429	Host range, morphology and DNA restriction patterns of bacterio- phage isolates infecting <i>Rhizobium leguminosarum</i> bv. <i>trifolii</i>
L. Zelles, Q. Y. Bai, R. X. Ma, R. Rackwitz, K. Winter and F. Beese	439	Microbial biomass, metabolic activity and nutritional status determined from fatty acid patterns and poly-hydroxybutyrate in agriculturally-managed soils
John G. Waterer, J. Kevin Vessey, Elmer H. Stobbe and Robert J. Soper	447	Yield and symbiotic nitrogen fixation in a pea-mustard intercrop as influenced by N fertilizer addition
E. S. Jensen	455	Dynamics of mature pea residue nitrogen turnover in unplanted soil under field conditions

E. S. Jensen

Katsuji Watanabe, Susumu Asakawa and Koichi Hayano

S. P. Deng and M. A. Tabatabai

465 Availability of nitrogen in ¹⁵N-labelled mature pea residues to subsequent crops in the field

473 Colorimetric determination of reducing sugars in soils

479 Evaluation of extracellular protease activities of soil bacteria

483 Biostimulation de la croissance de Lolium perenne L. par l'azote R. Hameed, J. Cortez et excrété par Lumbricus terrestris L.-mesure au laboratoire de ce M. B. Bouché R. Hameed, M. B. Bouché 495 Etudes in situ des transferts d'azote d'origine lombricienne et J. Cortez (Lumbricus terrestris L.) vers les plantes A. Smolander and E. Mälkönen 503 Microbial biomass C and N in limed soil of Norway spruce stands 511 Microbial utilization of 14C[U]glucose in soil is affected by the Eric Bremer and Peter Kuikman amount and timing of glucose additions Short Communications 519 Mineralization-immobilization of nitrogen in soil amended with low E. S. Jensen C:N ratio plant residues with different particle sizes 523 Effect of atrazine on potential denitrification in aquifer sediments P. M. Bradley, F. H. Chapelle, M. L. Jagucki and P. B. McMahon **Forthcoming Papers**

Volume 26 Number 5

FRANKIA AND ACTINORHIZAL PLANTS

Warwick Silvester and Sharon Harris	V	Preface
Dwight D. Baker and Alison Berry	vii	A tribute to John G. Torrey 1921-1993
Kerstin Huss-Danell and David D. Myrold	525	Intrageneric variation in nodulation of <i>Alnus</i> : consequences for quantifying <i>Frankia</i> nodulation units in soil
David D. Myrold and Kerstin Huss-Danell	533	Population dynamics of \emph{Alnus} -infective $\emph{Frankia}$ in a forest soil with and without host trees
N. R. McEwan, C. T. Wheeler and J. J. Milner	541	Strain discrimination of cultured and symbiotic Frankia by RFLP-PCR
Dwight D. Baker and Beth C. Mullin	547	Diversity of <i>Frankia</i> nodule endophytes of the actinorhizal shrub <i>Ceanothus</i> as assessed by RFLP patterns from single nodule lobes
Benoit Cournoyer and Philippe Normand	553	Characterization of a spontaneous thiostrepton-resistant <i>Frankia alni</i> infective isolate using PCR-RFLP of <i>nif</i> and <i>gln</i> II genes
Dallas B. Aronson and Gregory L. Boyer	561	Growth and siderophore formation in six iron-limited strains of Frankia
Shawky Selim and Jaime Schwencke	569	1,2-Dipalmitoyl phosphatidylcholine, 1,2-dipalmitoyl phosphatidic acid or 1,2-dipalmitoyl-sn-glycerol inhibit sporangia formation and promote exponential growth of various Frankia isolates from the Casuarinaceae family
C. T. Wheeler, G. S. Tonin* and A. Sutcliffe	577	Polyamines of Frankia in relation to nitrogen nutrition
Anita Sellstedt and Ulrika Mattsson	583	Hydrogen metabolism in <i>CasuarinaFrankia</i> : immunolocalization of nitrogenase and hydrogenase
S. H. Burleigh and J. O. Dawson	593	Desiccation tolerance and trehalose production in Frankia hyphae
John A. Arnone III, Steven J. Kohls and Dwight D. Baker	599	Nitrate effects on nodulation and nitrogenase activity of actinorhizal Casuarina studied in split-root systems
Wanda K. Crannell, Yasu Tanaka and David D. Myrold	607	Calcium and pH interaction on root nodulation of nursery-grown red alder (<i>Alnus rubra</i> Bong.) seedlings by <i>Frankia</i>
Laura J. Crocker and	615	Soil conditions affect the occurrence of cluster roots in Myrica

Christa R. Schwintzer

Steven J. Kohls, Chris van Kessel, Dwight D. Baker, David F. Grigal and Donald B. Lawrence	623	Assessment of N_2 fixation and N cycling by \textit{Dryas} along a chronosequence within the forelands of the Athabasca Glacier, Canada
Shengyou Zeng and John D. Tjepkema	633	The wall of the infected cell may be the major diffusion barrier in nodules of <i>Myrica gale</i> L.
Sharon Harris and Warwick Silvester	641	Acetylene- and argon-induced declines in nitrogenase activity in Coriaria arborea
Anne-Marie Domenach, André Moiroud and Lucile Jocteur-Monrozier	649	Leaf carbon and nitrogen constituents of some actinorhizal tree species
Samira R. Mansour and Dwight D. Baker	655	Selection trials for effective N_2 -fixing Casuarina-Frankia combinations in Egypt
Short Communication Erica Lumini, Marco Bosco, Gigliola Puppi, Raffaella Isopi, Mauro Frattegiani, Enrico Buresti and Franco Favilli	659	Field performance of <i>Alnus cordata</i> Loisel (Italian alder) inoculated with <i>Frankia</i> and VA-mycorrhizal strains in mine-spoil afforestation plots
Forthcoming Papers	1	
	Vo	lume 26 Number 6
Accelerated Paper H. Tapp, L. Calamai and G. Stotzky	663	Adsorption and binding of the insecticidal proteins from Bacillus thuringiensis subsp. kurstaki and subsp. tenebrionis on clay minerals
General Papers Gamini Seneviratne, S. A. Kulasooriya and Thomas Rosswall	681	Sustainment of soil fertility in the traditional rice farming, dry zone, Sri Lanka
Miriam Freund, Oded Yarden, Rina Varsano and Baruch Rubin	689	Reduced fluridone efficacy in soil: a possible case for reversible microbial inactivation
Hema Singh and K. P. Singh	695	Nitrogen and phosphorus availability and mineralization in dryland reduced tillage cultivation: effects of residue placement and chemical fertilizer
Fiona G. Rynne, Andrew R. Glenn and Michael J. Dilworth	703	Effect of mutations in aromatic catabolism on the persistence and competitiveness of <i>Rhizobium leguminosarum</i> bv. <i>trifolii</i>
B. Frey, A. Vilariño, H. Schüepp and J. Arines	711	Chitin and ergosterol content of extraradical and intraradical mycelium of the vesicular-arbuscular mycorrhizal fungus <i>Glomus intraradices</i>
L. D. J. Penrose and S. M. Neate	719	Resistance to <i>Gaeumannomyces graminis</i> in wheat genotypes grown in field environments and sand culture
R. D. Bardgett and S. Saggar	727	Effects of heavy metal contamination on the short-term decomposition of labelled [14C]glucose in a pasture soil
Kenji Tatsumi, Alan Freyer, Robert D. Minard and Jean-Marc Bollag	735	Enzymatic coupling of chloroanilines with syringic acid, vanillic acid and protocatechuic acid
S. P. Trehan	743	Immobilization of ¹⁵ NH ₄ by cattle slurry decomposing in soil
Audrey Meikle, L. Anne Glover, Kenneth Killham and James I. Prosser	747	Potential luminescence as an indicator of activation of genetically-modified <i>Pseudomonas fluorescens</i> in liquid culture and in soil
Chris van Kessel, Richard E. Farrell, Joann P. Roskoski and Kevin M. Keane	757	7 Recycling of the naturally-occurring ¹⁵ N in an established stand of Leucaena leucocephala

Marianne Johansson	763	Quantification of mycorrhizal infection in roots of <i>Calluna vulgaris</i> (L.) Hull from Danish heathland
Alan A. Keeling, lan K. Paton and John A. J. Mullett	767	Germination and growth of plants in media containing unstable refuse-derived compost
Alan A. Keeling, John A. J. Mullett and Ian K. Paton	773	GC-mass spectrometry of refuse-derived composts
L. Gianfreda, F. Sannino, N. Ortega and P. Nannipieri	777	Activity of free and immobilized urease in soil: effects of pesticides
Juan M. Caba, Carmen Lluch and Francisco Ligero	785	Genotypic variability of nitrogen metabolism enzymes in nodulated roots of $\textit{Vicia faba}$
Marcela Zamudio and Fernando Bastarrachea	791	Adhesiveness and root hair deformation capacity of <i>Azospirillum</i> strains for wheat seedlings
Short Communications L. A. Schipper, A. B. Cooper, C. G. Harfoot and W. J. Dyck	799	An inverse relationship between nitrate and ammonium in an organic riparian soil
Patrick Mavingui and Thierry Heulin	801	In vitro chitinase and antifungal activity of a soil, rhizosphere and rhizoplane population of Bacillus polymyxa
Forthcoming Papers	1	
	Vo	lume 26 Number 7
Kamtin Leung and Peter J. Bottomley	805	Growth and nodulation characteristics of subclover (<i>Trifolium subterraneum</i> L.) and <i>Rhizobium leguminosarum</i> bv. <i>trifolii</i> at different soil water potentials
Samir Pal, Jean-Marc Bollag and P. M. Huang	813	Role of abiotic and biotic catalysts in the transformation of phenolic compounds through oxidative coupling reactions
J. N. Ladd, M. Amato, Zhou Li-kai and J. E. Schultz	821	Differential effects of rotation, plant residue and nitrogen fertilizer on microbial biomass and organic matter in an Australian Alfisol
H. J. van Praag, G. Lognay, G. Carletti, F. Weissen and M. Severin	833	Temporal and spatial variations of root tip density and ergosterol content of mycorrhizal roots of <i>Picea abies</i> Karst. and <i>Fagus sylvatica</i> L.
Peter Borga, Mats Nilsson and Anders Tunlid	841	Bacterial communities in peat in relation to botanical composition as revealed by phospholipid fatty acid analysis
Jane L. Mawdsley and Richard G. Burns	849	Factors affecting the survival of a Flavobacterium species in non-planted and rhizosphere soil

J. N. Ladd, M. Amato, Zhou Li-kai and J. E. Schultz	821	Differential effects of rotation, plant residue and nitrogen fertilizer on microbial biomass and organic matter in an Australian Alfisol
H. J. van Praag, G. Lognay, G. Carletti, F. Weissen and M. Severin	833	Temporal and spatial variations of root tip density and ergosterol content of mycorrhizal roots of <i>Picea abies</i> Karst. and <i>Fagus sylvatica</i> L.
Peter Borga, Mats Nilsson and Anders Tunlid	841	Bacterial communities in peat in relation to botanical composition as revealed by phospholipid fatty acid analysis
Jane L. Mawdsley and Richard G. Burns	849	Factors affecting the survival of a <i>Flavobacterium</i> species in non-planted and rhizosphere soil
Jane L. Mawdsley and Richard G. Burns	861	Root colonization by a ${\it Flavobacterium}$ species and the influence of percolating water
Jane L. Mawdsley and Richard G. Burns	871	Inoculation of plants with a <i>Flavobacterium</i> species results in altered rhizosphere enzyme activities
D. S. Daramola, S. K. A. Danso and G. Hardarson	883	Nodulation, N_2 fixation and dry matter yield of soybean [Glycine max (L.) Merrill] inoculated with effective and ineffective Bradyrhizobium japonicum strains
Gero Benckiser	891	Relationships between field-measured denitrification losses, ${\rm CO_2}$ formation and diffusional constraints
D. J. McKenney, C. F. Drury, W. I. Findlay, B. Mutus, T. McDonnell and C. Gajda	901	Kinetics of denitrification by <i>Pseudomonas fluorescens</i> : oxygen effects
C. R. Thornton, F. M. Dewey and C. A. Gilligan	909	Development of a monoclonal antibody-based enzyme-linked immunosorbent assay for the detection of live propagules of <i>Trichoderma harzianum</i> in a peat-bran medium

M. Fulchieri and L. Frioni 921 Azospirillum inoculation on maize (Zea mays): effect on yield in a field experiment in Central Argentina Short Communication L. Dendooven, P. Splatt and 925 The use of chloramphenicol in the study of the denitrification J. M. Anderson process: some side-effects **Forthcoming Papers** 1

Volume 26 Number 8

S. Khalil and T. E. Loynachan	929	Soil drainage and distribution of VAM fungi in two toposequences
P. P. Motavalli, C. A. Palm, W. J. Parton, E. T. Elliott and S. D. Frey	935	Comparison of laboratory and modeling simulation methods for estimating soil carbon pools in tropical forest soils
D. Andrivon	945	Dynamics of the survival and infectivity to potato tubers of sporangia of <i>Phytophthora infestans</i> in three different soils
D. Andrivon	953	Fate of <i>Phytophthora infestans</i> in a suppressive soil in relation to pH
A. Smolander, A. Kurka, V. Kitunen and E. Mälkönen	957	Microbial biomass C and N, and respiratory activity in soil of repeatedly limed and N- and P-fertilized Norway spruce stands
Karl Ritz and Bryan S. Griffiths	963	Potential application of a community hybridization technique for assessing changes in the population structure of soil microbial communities
N. Y. O. Muyima, A. J. Reinecke and S. A. Viljoen-Reinecke	973	Moisture requirements of <i>Dendrobaena veneta</i> (Oligochaeta), a candidate for vermicomposting
Ulrike Krauss and J. W. Deacon	977	Water-facilitated transport of a pimaricin-resistant strain of <i>Mucor hiemalis</i> in the rhizosphere of groundnut (<i>Arachis hypogaea</i> L) in a Malawian ferric luvisol
Rainer Georg Joergensen, Brunk Meyer and Torsten Mueller	987	Time-course of the soil microbial biomass under wheat: a 1 yr field study
E. Bååth and K. Arnebrant	995	Growth rate and response of bacterial communities to pH in limed and ash treated forest soils
Sten Struwe and Annelise Kjøller	1003	Potential for $\rm N_2O$ production from beech (Fagus silvaticus) forest soils with varying pH
A. Gorissen, N. N. Joosten and S. L. G. E. Burgers	1011	Ammonium deposition and the mycoflora in the rhizosphere of Douglas-fir
A. Walter, V. Römheld, H. Marschner and D. E. Crowley	1023	Iron nutrition of cucumber and maize: effect of <i>Pseudomonas</i> putida YC 3 and its siderophore
R. E. Farrell, V. V. S. R. Gupta and J. J. Germida	1033	Effects of cultivation on the activity and kinetics of arylsulfatase in Saskatchewan soils
C. Abbès, L. E. Parent and A. Karam	1041	Nitrification of ammoniated peat and ammonium sulfate in mineral soils
Clare H. Robinson, J. Dighton, Juliet C. Frankland and J. D. Roberts	1053	Fungal communities on decaying wheat straw of different resource qualities
Luo Qui-xiang, J. R. Freney, D. G. Keerthisinghe and M. B. Peoples	1059	Inhibition of urease activity in flooded soils by phenylphosphorodiamidate and N-(n-butyl)thiophosphorictriamide
G. R. Cline and Z. Ngewoh Senwo	1067	Tolerance of lespedeza <i>Bradyrhizobium</i> to acidity, aluminum, and manganese in culture media containing glutamate or ammonium
J. Baar, W. A. Ozinga, I. L. Sweers and Th. W. Kuyper	1073	Stimulatory and inhibitory effects of needle litter and grass extracts on the growth of some ectomycorrhizal fungi

AL. E. Mahmoud and M. H. Abd-Alla	1081	Natural occurrence of mycotoxins in broad bean (<i>Vicia faba</i> L.) seeds and their effect on <i>Rhizobium</i> -legume symbiosis
Margaret M. Roper, Jillanne E. Turpin and John P. Thompson	1087	Nitrogenase activity (${\rm C_2H_2}$ reduction) by free-living bacteria in soil in a long-term tillage and stubble management experiment on a vertisol
Short Communications H. Christensen and L. K. Poulsen	1093	Detection of Pseudomonas in soil by rRNA targeted in situ hybridization
D. Erceg, P. O'Brien, T. L. Bulman and A. R. Glenn	1097	Survival and movement of a recombinant strain of <i>Rhizobium leguminosarum</i> biovar <i>trifolii</i> in intact soil core microcosms
Letters to the Editor I. L. Pepper, J. W. Brendecke and R. D. Axelson	1099	Metal contamination on soil microorganisms
Ernst Witter, Ken E. Giller and Steve P. McGrath	1100	Response
Forthcoming Papers	1	
	Voi	lume 26 Number 9
Accelerated Papers John C. Zak, Michael R. Willig, Daryl L. Moorhead and Howard G. Wildman	1101	Functional diversity of microbial communities: a quantitative approach
M. Amato and J. N. Ladd	1109	Application of the ninhydrin-reactive N assay for microbial biomass in acid soils
General Papers Barbara Bürkert and Alan Robson	1117	657n untaka in auhtawanaan alayay (Trifalium auhtawanaum I.) hu
Barbara Burkert and Alan Hobson	1117	⁶⁵ Zn uptake in subterranean clover (<i>Trifolium subterraneum</i> L.) by three vesicular–arbuscular mycorrhizal fungi in a root-free sandy soil
P. Mary, N. Dupuy, C. Dolhem-Biremon, C. Defives and R. Tailliez	1125	Differences among <i>Rhizobium meliloti</i> and <i>Bradyrhizobium japonicum</i> strains in tolerance to desiccation and storage at different relative humidities
J. P. Thompson	1133	Inoculation with vesicular-arbuscular mycorrhizal fungi from cropped soil overcomes long-fallow disorder of linseed (<i>Linum usitatissimum L.</i>) by improving P and Zn uptake
Chandrika Varadachari, Ajijul Haque Mondal, Dulal C. Nayak and Kunal Ghosh	1145	Clay-humus complexation: effect of pH and the nature of bonding
Jeffrey L. Smith,	1151	Spatial relationships of soil microbial biomass and C and N miner-

C. I	3. Christianson and	1161	Use of soil thin-layer chromatography to assess the mobility of the
R. (G. Howard		phosphoric triamide urease inhibitors and urea in soil

C. J. Watson, H. Miller, P. Poland, 1165	Soil properties and the ability of the urease inhibitor N-(n-butyl)
D. J. Kilpatrick, M. D. B. Allen, M. K. Garrett and C. B. Christianson	thiophosphoric triamide (nBTPT) to reduce ammonia volatilization from surface-applied urea

I. M. Young, A. Roberts, B. S. Griffiths and S. Caul 1173 Growth of a ciliate protozoan in model ballotini systems of differe particle sizes	ant
-----------------------------------------------------------------------------------------------------------------------------------------------	-----

G. P. Sparling,	1179	Microbial C and N in revegetated wheatbelt soils in Western
S. Anne Brandenburg and Chunya Zhu		Australia: estimation in soil, humus and leaf-litter using the nin- hydrin method

C. García, T. Hernández	1185	Microbial	activity	in	soils	under	Mediterranean	environmental
and F. Costa		conditions	3					

J. F. Darbyshire, M. S. Davidson, S. J. Chapman and S. Ritchie	1193	Excretion of nitrogen and phosphorus by the soil ciliate <i>Colpoda steinii</i> when fed the soil bacterium <i>Arthrobacter</i> sp.
A. Fließbach, R. Martens and H. H. Reber	1201	Soil microbial biomass and microbial activity in soils treated with heavy metal contaminated sewage sludge
Thomas Hintze, Peter Gehlen and Dietmar Schröder	1207	Are microbial biomass estimations equally valid with arable soils and forest soils?
E. A. Stockdale and R. M. Rees	1213	Relationships between biomass nitrogen and nitrogen extracted by other nitrogen availability methods
J. Hassink	1221	Effects of soil texture and grassland management on soil organic C and N and rates of C and N mineralization
Timothy B. Parkin and Edwin C. Berry	1233	Nitrogen transformations associated with earthworm casts
P. J. Ann	1239	Survey of soils suppressive to three species of <i>Phytophthora</i> in Taiwan
A. R. Harris, D. A. Schisler, R. L. Correll and M. H. Ryder	1249	Soil bacteria selected for suppression of <i>Rhizoctonia solani</i> , and growth promotion, in bedding plants
A. Zsolnay and H. Görlitz	1257	Water extractable organic matter in arable soils: effects of drought and long-term fertilization
S. Saggar, K. R. Tate, C. W. Feltham, C. W. Childs and A. Parshotam	1263	Carbon turnover in a range of allophanic soils amended with $\rm ^{14}C\textsubsection}$ labelled glucose
T. Nishio	1273	Estimating nitrogen transformation rates in surface aerobic soil of a paddy field
Short Communications H. Kirchmann and M. Eklund	1281	Microbial biomass in a savanna-woodland and an adjacent arable soil profile in Zimbabwe
P. M. Stephens, C. W. Davoren, M. H. Ryder and B. M. Doube	1285	Influence of the earthworms Aporrectodea rosea and Aporrectodea trapezoides on Rhizoctonia solani disease of wheat seedlings and the interaction with a surface mulch of cereal-pea straw
Erratum	1289	
Forthcoming Papers	1290	
	Voi	lume 26 Number 10
Accelerated Paper		
P. M. Stephens, C. W. Davoren, B. M. Doube and M. H. Ryder	1291	Ability of the lumbricid earthworms Aportectodea rosea and Aportectodea trapezoides to reduce the severity of take-all under greenhouse and field conditions
General Papers HW. Olfs and W. Werner	1299	Characterization of soil nitrogen and nitrogen uptake by grass following a two-year fallow of potted soils receiving mineral and organic sources of nitrogen
R. L. Sinsabaugh and D. L. Moorhead	1305	Resource allocation to extracellular enzyme production: a model for nitrogen and phosphorus control of litter decomposition
Erick Zagal and Jan Persson	1313	Immobilization and remineralization of nitrate during glucose decomposition at four rates of nitrogen addition
B. J. R. Alexander and A. Stewart	1323	Survival of sclerotia of <i>Sclerotinia</i> and <i>Sclerotium</i> spp in New Zealand horticultural soil
P. M. Crill, P. J. Martikainen, H. Nykänen and J. Silvola	1331	Temperature and N fertilization effects on methane oxidation in a drained peatland soil
S. Nardi, M. R. Panuccio, M. R. Abenavoli and A. Muscolo	1341	Auxin-like effect of humic substances extracted from faeces of Allolobophora caliginosa and A. rosea

S. P. Deng and M. A. Tabatabai	1347	Cellulase activity of soils
M. P. You and K. Sivasithamparam	1355	Hydrolysis of fluorescein diacetate in an avocado plantation mulch suppressive to <i>Phytophthora cinnamomi</i> and its relationship with certain biotic and abiotic factors
C. B. McAllister, I. García-Romera, A. Godeas and J. A. Ocampo	1363	Interactions between <i>Trichoderma koningii</i> , <i>Fusarium solani</i> and <i>Glomus mosseae</i> : effects on plant growth, arbuscular mycorrhizas and the saprophyte inoculants
C. B. McAllister, I. García-Romera, A. Godeas and J. A. Ocampo	1369	In vitro interactions between Trichoderma koningii, Fusarium solani and Glomus mosseae
E. Parlanti, C. Hita, P. Jambu, H. Dinel and A. Amblès	1375	The internal double-bond insertion: a side reaction of aliphatic hydrocarbons degradation in soil
K. Franzluebbers, R. W. Weaver, A. S. R. Juo and A. J. Franzluebbers	1379	Carbon and nitrogen mineralization from cowpea plant parts decomposing in moist and in repeatedly dried and wetted soil
H. Siepel and F. Maaskamp	1389	Mites of different feeding guilds affect decomposition of organic matter
R. A. Drijber and W. B. McGill	1395	Sulfonolipids as a biomarker to monitor the population dynamics of the genera Cytophaga and Flexibacter in soil worked by the earthworm Aportectodea turgide
Shlomo Sarig and Yosef Steinberger	1405	Microbial biomass response to seasonal fluctuation in soil salinity under the canopy of desert halophytes
Antonio Gallardo and William H. Schlesinger	1409	Factors limiting microbial biomass in the mineral soil and forest floor of a warm-temperate forest
V. N. Pandey and N. K. Dubey	1417	Antifungal potential of leaves and essential oils from higher plants against soil phytopathogens
LM. Dandurand, M. J. Morra, M. H. Chaverra and C. S. Orser	1423	Survival of <i>Pseudomonas</i> spp in air-dried mineral powders
A. R. Harris, D. A. Schisler, M. H. Ryder and P. G. Adkins	1431	Bacteria suppress damping-off caused by <i>Pythium ultimum</i> var. <i>sporangiiferum</i> , and promote growth, in bedding plants
Short Communications C. Freeman, J. Hudson, M. A. Lock, B. Reynolds and C. Swanson	1439	A possible role of sulphate in the suppression of wetland methane fluxes following drought
L. J. Sikora, V. Yakovchenko and D. D. Kaufman	1443	Comparison of the rehydration method for biomass determination to fumigation—incubation and substrate-induced respiration method
A. M. Jackson and A. S. Ball	1447	Importance of isolation media on the isolation frequency of Thermoactinomyces species
Eric A. Davidson and Joseph L. Hackler	1449	Soil heterogeneity can mask the effects of ammonium availability on nitrification
Sigrun Dahlin	1455	Importance of water-soluble C in filter paper on the determination of microbial C by the fumigation-extraction method
Book Review	1457	
Forthcoming Papers	1	

Volume 26 Number 11

Hichard D. Boone	1459	nitrogen mineralization
A. J. Franziuebbers, F. M. Hons and D. A. Zuberer	1469	Seasonal changes in soil microbial biomass and mineralizable C and N in wheat management systems

J. C. Octive, A. C. Johnson and M. Wood	1477	Effects of previous aluminium exposure on motility and nodulation by <i>Rhizobium</i> and <i>Bradyrhizobium</i>
Ida Thingstrup and Søren Rosendahl	1483	Quantification of fungal activity in arbuscular mycorrhizal symbiosis by polyacrylamide gel electrophoresis and densitometry of malate dehydrogenase
Gamini Seneviratne, Jayantha Karunaratne, S. A. Kulasooriya and Thomas Rosswall	1491	Theory to predict potentially mineralizable nitrogen in soils
P. M. Stephens, C. W. Davoren, M. H. Ryder, B. M. Doube and R. L. Correll	1495	Field evidence for reduced severity of <i>Rhizoctonia</i> bare-patch disease of wheat, due to the presence of the earthworms <i>Aporrectodea rosea</i> and <i>Aporrectodea trapezoides</i>
L. Dendooven and J. M. Anderson	1501	Dynamics of reduction enzymes involved in the denitrification process in pasture soil
A. G. O'Donnell, J. Wu and J. K. Syers	1507	Sulphate-S amendments in soil and their effects on the transformation of soil sulphur
Stefan Scheu and Dennis Parkinson	1515	Changes in bacterial and fungal biomass C, bacterial and fungal biovolume and ergosterol content after drying, remoistening and incubation of different layers of cool temperate forest soils
D. G. Keerthisinghe and J. R. Freney	1527	Inhibition of urease activity in flooded soils: effect of thiophosphorictriamides and phosphorictriamides
B. K. Robertson and Martin Alexander	1535	Mode of dispersal of the stem-nodulating bacterium, Azorhizobium
A. Ikram, E. S. Jensen and I. Jakobsen	1541	No significant transfer of N and P from <i>Pueraria phaseoloides</i> to <i>Hevea brasiliensis</i> via hyphal links of arbuscular mycorrhiza
P. N. Nelson, M-C. Dictor and G. Soulas	1549	Availability of organic carbon in soluble and particle-size fractions from a soil profile
J. L. M. Gonçalves and J. C. Carlyle	1557	Modelling the influence of moisture and temperature on net nitrogen mineralization in a forested sandy soil
J. Hassink, A. M. Neutel and P. C. De Ruiter	1565	C and N mineralization in sandy and loamy grassland soils: the role of microbes and microfauna
J. Hassink	1573	Effect of soil texture on the size of the microbial biomass and on the amount of C and N mineralized per unit of microbial biomass in Dutch grassland soils
Short Communications		
M. C. Ryan and R. Aravena	1583	Combining ¹³ C natural abundance and fumigation–extraction methods to investigate soil microbial biomass turnover
S. Khalil, L. Carpenter-Boggs and T. E. Loynachan	1587	Procedure for rapid recovery of VAM fungal spores from soil
Corrigendum	1589	
Forthcoming Papers	1590	

Volume 26 Number 12

Review Yaacov Okon and Carlos A. Labandera-Gonzalez	1591	Agronomic applications of <i>Azospirillum</i> : an evaluation of 20 years worldwide field inoculation
Accelerated Papers Richard T. Lamar, Mark W. Davis, Diane M. Dietrich and John A. Glaser	1603	Treatment of a pentachlorophenol- and creosote-contaminated soil using the lignin-degrading fungus <i>Phanerochaete sordida</i> : a field demonstration

Birgit W. Hütsch, Colin P. Webster and David S. Powlson	1613	Methane oxidation in soil as affected by land use, soil pH and N fertilization $% \left\{ \mathbf{p}^{\prime}\right\} =\left\{ \mathbf{p}^{\prime}\right\}$
General Papers D. W. Hopkins, B. L. Isabella and S. E. Scott	1623	Relationship between microbial biomass and substrate induced respiration in soils amended with D- and L-isomers of amino acids
S. C. Jarvis and D. J. Hatch	1629	Potential for denitrification at depth below long-term grass swards
David F. Bezdicek, Mark A. Quinn, Lisa Forse, David Heron and Michael L. Kahn	1637	Insecticidal activity and competitiveness of Rhizobium spp containing the Bacillus thuringiensis subsp. tenebrionis δ -endotoxin gene (crylll) in legume nodules
V. O. Biederbeck, H. H. Janzen, C. A. Campbell and R. P. Zentner	1647	Labile soil organic matter as influenced by cropping practices in an arid environment
J. G. Dubrovsky, M. Esther Puente and Y. Bashan	1657	Arabidopsis thaliana as a model system for the study of the effect of inoculation by Azospirillum brasilense Sp-245 on root hair growth
W. J. Hickey, D. J. Fuster and R. T. Lamar	1665	Transformation of atrazine in soil by Phanerochaete chrysosporium
W. Völkel, Th. Choné, F. Andreux, M. Mansour and F. Korte	1673	Influence of temperature on the degradation and formation of bound residues of 3,4-dichloroaniline in soil
B. J. Duijff, W. J. de Kogel, P. A. H. M. Bakker and B. Schippers	1681	Influence of pseudobactin 358 on the iron nutrition of barley
Sung Ok Han and Peter B. New	1689	Effect of water availability on degradation of 2,4-dichlorophenoxyacetic acid (2,4-D) by soil microorganisms
A. Roldán, F. García-Orenes and A. Lax	1699	An incubation experiment to determine factors involving aggregation changes in an arid soil receiving urban refuse
Short Communication Ousman Diagne and Dwight D. Baker	1709	Quantification of symbiotic N fixation by <i>Prosopis juliflora</i> (Swartz) D.C. using ¹⁵ N-isotope dilution methodology
Forthcoming Papers	1	

